

Lesson Plan

Chemistry

Week	Lecture Day	Theory	Practical	
		Topic(Including Assignments)	Practical Day	Topic
1st	1st	Unit1:- Atomic Structure,Periodic Table and Chemical Bonding Bohr's model of atom (qualitative treatment only),	1st	1.)To prepare standard solution of oxalic acid.(Group-1)
	2nd	Dual character of matter: derivation of de-Broglie's equation, Heisenberg's Principle of Uncertainty,		
	3rd	Modern concept of atomic structure: definition of orbitals , shapes of s, p and d- orbitals,	2nd	1)To prepare standard solution of oxalic acid.(Group-2)
2nd	4th	Quantum numbers and their Significance.	1st	2)To dilute the given KMnO4 solution(Group-1)
	5th	Electronic configuration: Aufbau and Pauli's exclusion principles		
	6th	Hund's rule, electronic configuration of elements up to atomic number 30.	2nd	2)To dilute the given KMnO4 solution(Group-2)
3rd	7th	Modern Periodic law and Periodic table	1st	3)To find out the strength in grams per litre of an unknown solution of sodium hydroxide using a standard (N/10) oxalic acid solution.(Group-1)
	8th	Classification of elements into s, p, d and f-blocks, metals, non-metals and metalloids		
	9th	Chemical bonding: cause of bonding	2nd	3)To find out the strength in grams per litre of an unknown solution of sodium hydroxide using a standard (N/10) oxalic acid solution.(Group-2)
4th	10th	Ionic bond, covalent bond, and metallic bond (electron sea or gas model)	1st	Revision/viva
	11th	Physical properties of ionic, covalent and metallic substances.		
	12th	Unit2:- Metals and Alloys Metals: mechanical properties of metals such as conductivity, elasticity, strength and stiffness, luster, hardness, toughness, ductility, malleability, brittleness, and impact resistance and their uses.	2nd	Revision/viva
5th	13th	Definition of a mineral, ore, gangue, flux and slag Metallurgy of iron from haematite using a blast furnace	1st	4)To find out the total alkalinity in parts per million (ppm) of a water sample with the help of a standard sulphuric acid solution(Group-1)
	14th	Commercial varieties of iron. Definition,necessity of making alloys		
	15th	Composition, properties and uses of duralumin and steel. Heat treatment of steel-normalizing, annealing, quenching, tempering	2nd	4)To find out the total alkalinity in parts per million (ppm) of a water sample with the help of a standard sulphuric acid solution(Group-2)
6th	16th	First Sessional Test(Tentative)	1st	First Sessional Test(Tentative)
	17th	First Sessional Test(Tentative)		First Sessional Test(Tentative)

	18th	First Sessional Test(Tentative	2nd	First Sessional Test(Tentative)
7th	19th	Unit3:- Water ,Solutions,Acids and Bases Solutions: definition, expression of the concentration of a solution in percentage (w/w, w/v and v/v),	1st	5)To determine the total hardness of given water sample by EDTA method(Group-1)
	20th	Normality, molarity and molality and ppm.		
	21th	Simple problems on solution preparation.	2nd	5)To determine the total hardness of given water sample by EDTA method(Group-2)
8th	22th	Arrhenius concept of acids and bases, strong and weak acids and bases	1st	6)To determine the amount of total dissolved solids(TDS) in ppm in a given sample of water Gravimetrically(Group-1)
	23th	pH value of a solution and its significance		
	24th	pH scale. Simple numerical problems on pH of acids and bases.	2nd	6)To determine the amount of total dissolved solids(TDS) in ppm in a given sample of water Gravimetrically(Group-2)
9th	25th	Hard and soft water, causes of hardness of water, types of hardness – temporary and permanent hardness	1st	Revision/viva(Group-1)
	26th	Expression of hardness of water, ppm unit of hardness disadvantages of hard water;		
	27th	Removal of hardness: removal of temporary hardness by boiling and Clark's method; removal of permanent hardness of water by Ion-Exchange method	2nd	Revision/viva(Group-2)
10th	28th	Boiler problems caused by hard water: scale and sludge formation, priming and foaming, caustic embrittlement	1st	7)To determine the pH of different solutions using a digital pH meter.(Group-1)
	29th	Water sterilization by chlorine, UV radiation and RO		
	30th	Unit4:- Fuels and Lubricants Fuels: definition and classification of higher and lower calorific values, units of calorific value, characteristics of an ideal fuel	2nd	7)To determine the pH of different solutions using a digital pH meter.(Group-2)
11th	31st	Second Sessional Test (Tentative)	1st	Second Sessional Test (Tentative)
	32nd	Second Sessional Test (Tentative)		
	33rd	Second Sessional Test (Tentative)	2nd	Second Sessional Test (Tentative)
12th	34th	Petroleum: composition and refining of petroleum; gaseous fuels: composition, properties and uses of CNG, PNG, LNG, LPG	1st	8)To determine the calorific value of a solid/liquid fuel using a Bomb calorimeter(Group-1)
	35 th	Relativeadvantages of liquid and gaseous fuels over solid fuels. Scope of hydrogen as future fuel		
	36th	Lubricants- Functions and qualities of a good lubricant,	2nd	8)To determine the calorific value of a solid/liquid fuel using a Bomb calorimeter(Group-2)
13th	37th	Classification of lubricants with examples; lubrication mechanism	1st	9)To determine the viscosity of a lubricating oil using a Redwood viscometer(Group-1)
	38th	Physical properties (brief idea only) of a lubricant: oiliness, viscosity, viscosity index, flash and fire point, ignition temperature, pour point		
	39th	Unit5:-- Polymers and Electrochemistry Polymers and Plastics: definition of polymer, classification, addition and condensation polymerization	2nd	9)To determine the viscosity of a lubricating oil using a Redwood viscometer(Group-2)

14th	40th	Preparation properties and uses of polythene, PVC, Nylon-66, Bakelite; definition of plastic	1st	10)To prepare a sample of Phenol-formaldehyde resin (Bakelite)/Nylon-66 in the lab(Group-1)
	41th	Thermoplastics and thermosetting polymers; natural rubber and neoprene, other synthetic rubbers (names only)		
	42nd	Corrosion: definition, dry and wet corrosion, factors affecting rate of corrosion, methods of prevention of corrosion	2nd	10)To prepare a sample of Phenol-formaldehyde resin (Bakelite)/Nylon-66 in the lab(Group-2)
15th	43th	Third Sessional Test(Tentative)	1st	Third Sessional Test(Tentative)
	44th	Third Sessional Test(Tentative)		
	45th	Third Sessional Test(Tentative)	2nd	Third Sessional Test(Tentative)
16th	46th	Hot dipping, metal cladding, cementation, quenching, cathodic protection methods	1st	Revision/Viva(Group-1)
	47th	Introduction and application of nanotechnology: nano-materials and their classification, applications of nanotechnology in various engineering applications		
	48th	Revision	2nd	Revision/Viva(Group-2)